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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/501,760 | 07/19/2004 | Guether Hambitzer | 2945-173 | 1108 |

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| EXAMINER | |
|---|---|
| CREPEAU, JONATHAN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1795 | |

| NOTIFICATION DATE | DELIVERY MODE |
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| 03/19/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/501,760 | HAMBITZER ET AL. | |
| | Examiner | Art Unit | |
| | Jonathan S. Crepeau | 1795 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/24/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of species (a)(i), (b)(i), and (c)(i) in the reply filed on February 26, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claim 14 is currently withdrawn as being directed to a nonelected species.

### *Claim Suggestions*

2. In claims 2, 9, 10, 11, 14 (currently withdrawn), 17, and 18, it is suggested that the "preferably" and "in particular" clauses be deleted or amended.

### *Claim Objections*

3. Claim 12 is objected to because of the following informalities: the claim recites "selected from the group comprising," which should be changed to "selected from the group consisting of." Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 5, 13, 15, and 19-23 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/44061. Hambitzer et al (U.S. Patent 6,709,789) is taken as an English equivalent of WO '061 herein. Hambitzer et al. teach a nonaqueous electrochemical cell having a positive electrode (3), negative electrode (4), and a separator (5). As shown in Figure 2, the negative electrode comprises a substrate (shown at 4) and a plurality of salt particles (10) located between the separator and the substrate. The salt is preferably an alkali metal halide (see col. 3, line 7). The cell further comprises an electrolyte comprising sulfur dioxide (see col. 6, line 5). A negative active mass, which may comprise Li (see col. 6, line 1 et seq.), is deposited on the substrate and grows into the pores of the salt particles upon charging (see col. 3, line 20). Regarding claim 3, as shown in the Figures, the particles approximate a spherical shape. Regarding claim 5, the porous salt completely fills the space between the substrate and the separator. Regarding claim 13, the particles are not bonded to each other (see col. 4, line 16). Regarding claims 22 and 23, the positive electrode contains lithium cobalt oxide (see col. 6, line 1).

Thus, the instant claims are anticipated.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 4, 6-10, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '061.

Hambitzer et al. '789 further teach that the salt particles may be provided on a fibrous carrier material (18) that is in the form of a felt, fleece or fabric (see col. 4, line 51). The carrier material can be a "chemically inert, rigid material, e.g., glass or oxide ceramics."

However, the reference does not expressly teach that this ceramic is in the form of particles, as recited in claims 6, 7, and 16.

However, the artisan would have been motivated to use the ceramic of Hambitzer et al. in a particulate form as the carrier for the salt particles. First, it is noted that the carrier of the reference is made up of a plurality of fibers. It would have been obvious to use "particles," rather than fibers, as the carrier material, absent a new or unexpected result. In general, a change in shape of a prior art element is not considered to impart a patentable distinction (MPEP 2144.04). Accordingly, insofar as the "fibers" of the reference are not considered to be "particles," it would be obvious to use particles of the ceramic as the carrier material. Regarding claim 6, the ceramic (e.g., silica or alumina) would be inert to the cell components. Regarding claim 8, the ceramic is not an ionically dissociating material. Regarding claims 9 and 10, the

ceramic would also have a melting point of at least 200C and a thermal conductivity of at least 5 W/mK.

Regarding claim 2, which recites that the volume proportion of solid particles in the porous structure is at least 40%, it would be obvious to adjust the porosity of the salt and/or ceramic particles so that a sufficient amount of lithium active mass is able to form on the substrate. Accordingly, this range is not considered to distinguish over the reference.

Regarding claim 4, which recites that the porous structure contains at least two fractions of particles having different average particle sizes, this subject matter would be rendered obvious based on the disclosure that the salt particles have a size of 50 microns and fill the pores of the fibrous carrier material (see col. 4, line 52; col. 5, line 39). As such, it would be obvious to use ceramic particles with sizes much larger than the size of salt particles. Claim 17 recites a size ratio of less than 1:2 and would also be rendered obvious. Claim 18, which recites that the volume of the salt particles is no more than 20% of the total solid volume of the porous structure, would also be rendered obvious.

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '061 in view of Aihara et al (2002/0102456).

Hambitzer et al. '789 do not expressly teach that the particles comprise a carbide or nitride of silicon, as recited in claims 11 and 12.

Aihara et al. is directed to a nonaqueous battery. In [0072] and [0074], the reference teaches an electrode comprising silicon carbide and silicon nitride powders as a filler.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Accordingly, the use of silicon carbide or silicon nitride as the ceramic of Hambitzer et al. would have been obvious to the skilled artisan.

***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-13 and 15-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,709,789. Although the conflicting claims are not identical, they are not patentably distinct from each other because the '789 patent claims anticipate at least some of the instant claims and render obvious the remaining claims for the reasons stated above.

11. Claims 1, 3, 5, 13, 15, and 19-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,730,441. Although the conflicting claims are not identical, they are not patentably distinct from each other because the '441 patent claims anticipate the instant claims.

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
March 20, 2008